

SOME NEW NORTH AMERICAN FULGORIDÆ.

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Some time ago, when about to publish a synopsis of the genus *Scolops*, the writer discovered that Dr. Uhler had the same genus in hand and his MSS. ready for the press. As the result of the correspondence, the writer dropped his work for the time, and Dr. Uhler promised to send his types as soon as his paper was published. (Proc. Md. Acad. Sc., p. 401, 1900.) With his usual thoughtfulness, the Doctor sent on the types, and with the aid of these and a fine series of eastern forms received from Mr. Otto Heidemann the author has been able to definitely place all the described species and recognize a number of new ones.

The genus is found in its greatest abundance in the border line of plain and mountain region, and so many new forms have been found here in the past few years that there are no doubt many more to be found on further search.

All but one or two of the species have been found to occur in two wing lengths; one in which the elytra are about the length of the abdomen and the under wings very short and probably not functional; the other in which the elytra are long and flaring, the wings well developed.

On account of the curved or angled nature of the cephalic process, the measurement of its length is a somewhat difficult matter. In the present paper the length given has been measured in a straight line from the tip to the middle of the eye.

Scolops Osborni, n. sp.

Form and structure of *sulcipes*, but larger and with a stouter process. Colour pale yellow as in the lighter species of *hesperius*. Elytra light, sparsely dotted with fuscous. Length: macropterous examples 11 mm., brachypterous 9 mm.; length of horn 3 mm.; width 4 mm.

Cephalic process long and slightly bent at the sulcus, larger than in *sulcipes* and not constricted beyond the sulcus, as large as that of *hesperius*, but regularly tapering anteriorly. Elytra with the two inner nervures of corium forked well before the middle and one branch at least of each again forked before the apex of clavus, cross nervures not as numerous as in *sulcipes* and very faint except at apex.

Colour: cephalic process and face yellow, pronotum and scutellum straw colour, a pair of pitchy black spots on the sides of the pronotum

just back of the eyes, which they exceed in diameter; a pair of dots on the disc and four black dots on posterior margin of scutellum. Elytra pale, the nervures concolorous, margined with regularly-arranged pairs of black dots, the costal and apical margins with large quadrate black spots; cross nervures, except at apex, unmarked.

Described from seven specimens; three from Sioux City, Iowa (Osborn); three from Onaga, Kans. (Crevecœur), and one from Effingham, Kans. (Van Duzee). The double furcation of the nervures will separate this from any but *sulcipes*, and the larger process and the lighter colour will readily differentiate it from this latter species.

Scolops Uhleri, n. sp.

Resembling *angustatus* and *perdix*, but much shorter-bodied and with a long straight process. Length 6.5-8 mm., process 2-3 mm.; width 2.5 mm.

Cephalic process long and straight, half longer than front, parallel margined, two-thirds the width of the vertex, vertex convex. Elytra straight and narrow as in *angustatus*, but much shorter, the middle sector forking farther back than the inner one.

Colour: face and apical process pale soiled yellow, the lateral margins of the latter dull brown, pronotum and scutellum pale, more or less clouded, a pair of rather large round spots on disc of pronotum and another pair near apex of scutellum. Elytra with the broad outer margin and most of the inner margin pale or milky white; just inside the outer sector is a broad smoky or dark brown stripe, very definite on the outer margin and fading out internally. This stripe is sparsely interrupted with light dots on the nervures.

Described from twenty-four examples from Grand Junction, Colo. The small, square-set body, together with the remarkably long, straight process, renders this a strikingly distinct form. The process is twice as long as in *angustatus* and considerably longer than in *perdix*. It is also stouter and strictly parallel-margined, while in those species it tapers.

Scolops maculosus, n. sp.

Form of *Uhleri* nearly, body distinctly oval, the process shorter and stouter, resembling *robustus* in shape and colour, but smaller. Length: ♀ 7 mm., ♂ 6 mm., process 2 mm.; width 2.75 mm.

Cephalic process stout, almost as wide as the vertex, a trifle enlarged at the apex, as long as the front, slightly curved upward. Elytra

rounding, but little longer than body, two inner sectors of corium usually forking together and about opposite where the claval nervures unite.

Colour: face and lower surface of process pale yellow, rest of process, except dorsal carinæ, deep brown. Pronotum and scutellum irregularly clouded, a pair of spots, each, on vertex, pronotum and scutellum. Tegulæ with the disc black. Elytra pale, the costal margins broadly light, rest of elytra with rather large light and dark spots along the nervures, usually a very definite light spot just before the forking of the ulnar nervures.

Described from twenty-four specimens, all from Colorado, where it is very generally distributed.

Scolops viridis, n. sp.

Form of *angustatus* nearly, but broader, as broad as *perdix*. Green, with pale smoky spots on elytra. Length: ♀ 8 mm., ♂ 7 mm., process 2 mm.; width 3.5 mm.

Cephalic process small, straight, parallel-margined, slightly longer than front, less than half the width of the broad vertex. Elytra rather broad, longer than body, the normal form very long and flaring in macropterous examples, two inner sectors forking just back of middle of elytra, the middle one usually a trifle in advance of the other.

Colour: light green, a pair of black spots on each, pronotum and scutellum. Elytra with a rather narrow light stripe on costal margin, the nervures bright green, alternately interrupted with light and margined with pale smoky yellow.

Described from twenty-four specimens from Grand Junction and Pueblo, Colo. The green colour renders this quite distinct and introduces a new feature into the genus.

Scolops abnormis, n. sp.

Form and general appearance of *grossus*, slightly lighter coloured and with a larger process and simpler venation. Length 8 mm., width 3.5 mm., process 3 mm.

Cephalic process upturned, much inflated, slightly wider than the vertex or the front between the eyes, median carinæ of front becoming obsolete on process, lateral carinæ slightly widening and dividing the width into three equal parts, process slightly longer than front, the sulcus indistinct, eyes rather prominent, head definitely constricted back of eyes so that they are remote from pronotum. Elytra moderately long, somewhat flaring behind, the middle sector simple.

Colour: cephalic process brown with small light maculations, the lower face between the carinæ and the front pale. Body and elytra pale gray, a pair of black spots on scutellum and more or less of brownish maculation on pronotum and elytral nervures.

Described from two specimens from San Jose, Calif. (King). The immense size of the process will at once separate this from *pallidus*, which it resembles in venation and colour.

Scolops Vanduzei, n. sp.

Form of *maculosus* nearly, but larger, resembling *abnormis*, but with much smaller process. Rusty straw-coloured. Length 7 mm., width 2.75 mm., process 2 mm.

Cephalic process not quite as wide as vertex, as long as front, strictly parallel-margined, lateral carinæ of lower face parallel, not enclosing over one-third of its width, head not constricted behind the eyes. Elytra longer than the body and well rounded behind, resembling *hesperius*, venation distinct, veins strong, middle sector usually forked slightly behind the inner one.

Colour: process mottled with fuscous and pale shading out to greenish fuscous on face, vertex with a fuscous crescent interrupted by the median carinæ, four fuscous spots in a transverse row on the pronotum and four more on the scutellum. Elytra pale smoky or grayish, the nervures light with light spots sparsely sprinkled along them, almost continuously margined with fuscous.

Described from eight examples from Kimball, Neb.

Scolops robustus, n. sp.

Resembling *maculosus*, but broader, stouter and with a cephalic process like *angustatus*. Length: ♀ 6 mm., ♂ 5.5 mm.; width 3 mm., process 1.25 mm.

Cephalic process very small and short, shorter than front, not over one-half the width of vertex, parallel-margined, vertex and eyes short and broad, head slightly constricted behind eyes, pronotum very short and broad, which gives the whole insect a broad, square-set appearance. Elytra either broad and square-set or very long and flaring, the middle sector usually forking slightly behind the inner one.

Colour: process greenish or smoky, the carinæ pale, vertex with a pair of small fuscous points, pronotum distinctly lighter, appearing as a light "collar," a pair of large round spots on disc, a pair of smaller points

against the carinæ outside, black. Tegulæ smoky brown, scutellum brownish or pale, with four large fuscous spots. Elytra milky white, clouded with brown along the light-dotted nervures, a pair of slightly oblique fuscous stripes towards the apex in the long-winged examples.

Described from twenty-four examples from various points in Colorado. Readily separated from all other species by the broad form and short process.

Cixius cultus, n. sp.

Resembling *stigmatus* without basal band, smaller and narrower. Narrower than *pini*, with a longer vertex. Length: ♀ 6.75 mm., ♂ 5 mm.; width 2 mm. Vertex longer than breadth at base, acutely triangular at apex, with the bounding carinæ distinct, apex distinctly overhanging front. Front rather narrow, enlarged over the antennæ beyond the line of the marginal curve, median and lateral carinæ distinct as in *colapeum*. Elytra very long and narrow, parallel-margined.

Colour: black, the carinæ of front and vertex, all the pronotum except the area behind the eyes, the tegulæ and the carinæ of scutellum, light. Sometimes the carinæ on front and scutellum are reddish. Elytra milky, sometimes slightly clouded with smoky and with a pair of smoky spots before the middle and another faint one inside the stigma. Stigma small and oblique.

Male pygofers short, with the posterior margin deeply notched, the apex of the notch with a short tooth. Styles about equalling the pygofers, slender at base, broadening out into a slipper-shaped apex, with the toe out. Anal tube without teeth below. Entire genitalia black.

Described from ten specimens from Calif., two from Kans. and nine from Colo. The elongate vertex and narrow form will readily separate this from any other described species.

Oliarus aridus, n. sp.

Resembling *panzeri*, but more elongate, as large as *5-lineatus*, but with longer and narrower elytra. Length: ♀ 7.25 mm., ♂ 6.5 mm.; width 3 mm.

Vertex shorter and broader than in *5-lineatus*, but little longer than wide, parallel-margined on posterior half, then rounding to a blunt apex, posterior margin angularly notched, face much broader than in *5-lineatus*, nearly flat transversely, with distinct carinæ. Elytra long and narrow, with a rather small stigma.

Colour: vertex fuscous, the carinæ light yellow, a definite light spot on the carinæ against the eyes, face testaceous, the carinæ slightly lighter, a larger light spot on each side below the antennæ. Pronotum dark, the carinæ and margins broadly light, scutellum testaceous, a dark stripe outside the carinæ. Elytra milky or hyaline, nervures very lightly marked, stigma and cross nervures fuscous.

Male pygofers long, ventral notch rather shallow, with a slender tooth, lateral margins of pygofers produced into a pair of teeth. Styles extending half their length beyond the pygofers, their inner margins appressed, narrow, nearly cylindrical at base, the apical half broad and obliquely truncate, together spear-shaped. Pygofers black, the posterior margins, tooth and styles, yellow.

Described from twenty-four specimens from Kans., Calif., and various parts of Colo.

Oliarus complectus, n. sp.

Form and general appearance of *aridus*, but much smaller. Smaller and narrower than *humilis*. Length: ♀ 5.5 mm., ♂ 4.5 mm.; width 1.75 mm.

Vertex nearly half longer than broad, narrowing from the base to the narrow truncate apex, lateral foveæ long and narrow. Vertex definitely produced in front of eyes and angulate with front, front narrower than in *aridus*. Elytra long and narrow, with a definite stigma.

Colour: vertex black, the carinæ light yellow; face, pronotum and scutellum varying from testaceous to black, the carinæ usually light. On very dark specimens those on scutellum often obscure. Elytra subhyaline, the nervures yellow and unmarked with black spots before the stigma. Back of this more or less smoky and black punctured.

Male pygofers rectangularly notched, with a long slender tooth. Styles extending one-third their length beyond the pygofers, then curving around and passing back under their margins again.

Described from twenty-four specimens from Hayti, W. I., Md., Kans., Ariz., and various places in the southern half of Colo. The small size and unmarked nervures will separate this species from any other described.

Oliarus sementinus, n. sp.

Short and robust, the elytra flaring as in *humilis*. Colour of *complectus* nearly. Length: ♀ 5 mm., ♂ 4.25 mm.; width 2.25 mm.

Vertex short and broad, nearly twice wider than long, the anterior margin roundly angulate, almost parallel with the emarginate posterior margin, vertex scarcely reaching the anterior margin of eyes, beyond which the gibbous front extends for about half the length of vertex. Face very broad and full, convex, with the median carina indistinct or wanting. Elytra broad and flaring, nervures strong, weakly black-punctured and beset with long white hairs.

Colour: vertex and front dark testaceous, the carinæ light yellow, pronotum light, scutellum light testaceous. Elytra milky subhyaline, nervures brownish at the base, then smoky, the cross nervures and apex margined with fuscous, the nervures clothed with long white hairs.

Male pygofers long and slender, deeply angularly notched with a small tooth. Styles as in *complectus*, but longer and leaving a large open space in the curve.

Described from seventeen specimens from Las Animas, Colo. Easily distinguished by the short head.

Myndus viridis, n. sp.

Form of *impunctatus* nearly, but smaller and narrower. Length: ♀ 5 mm, ♂ 4.5 mm.; width 1.5 mm.

Vertex twice longer than wide, very slightly constricted before the middle, face as in *impunctatus*, the median carinæ of clypeus indistinct. Elytra long and narrow, without a stigma.

Colour: bright grass green, fading to yellowish-green in old specimens. Elytra subhyaline.

Male pygofers almost truncate posteriorly, with a triangular median tooth. Styles moderately long, their enlarged oval apices slightly overlapping.

Described from fourteen examples from Grand Junction and a pair from Ames, Iowa. The green colour will at once separate this from any described species.

Myndus impiger, n. sp.

Form and general appearance of *impunctatus*. Smaller and less plainly marked. Length ♀ 4.5 mm.; width 1.5 mm.

Vertex rather broad, expanded at the base, where it is more than half as wide as its middle length, face broad, the median carinæ of clypeus distinct throughout. Elytra similar in shape to those of *impunctatus*, broader than in *viridis* and with a distinct stigma.

Colour: vertex and face testaceous, usually a horseshoe-shaped light mark on front, pronotum fuscous in front, forming a collar behind the eyes, the posterior margin and broad lateral areas light, scutellum testaceous, the carinæ rather lighter. Elytra subhyaline, the nervures brown or testaceous, sometime the apical ones clouded with fuscous.

Described from eight females from Palmer Lake, Ridgeway and Fort Collins, Colo. All taken in the mountains.

Myndus Slossoni, n. sp.

Short and stout. Black, with the margins of elytra and a median saddle light yellow. Length 4 mm., width 1.25 mm.

Vertex very broad, but slightly carinate, scarcely angled with front; front similar to *impiger*, eyes large, together with vertex nearly as broad as the pronotum. Pronotum very short, angulate behind, scutellum as in *impunctatus*, strongly tri-carinate. Elytra shorter and broader than even in *impunctatus*.

Colour: vertex, face, legs and pronotum leather-brown, lighter below. Eyes, scutellum and elytra black, the costal margins of elytra with narrow white stripes extending back beyond apex of clavus, a pale yellow, illy-defined saddle occupying nearly all the claval areas back of the apex of scutellum in the female and extending nearly to the costal stripes in the male.

Male pygofers with a semicircular excavation bearing a minute knobbed median process. Styles long, touching in the middle, then obliquely divergent. Anal tube with an acute median ventral process.

Described from a single pair from Biscayne Bay, Fla. Collected by Mrs. Slosson and sent me by Mr. E. P. Van Duzee. The head is proportionally larger (broader) in this form than in any other of our species.

Æcleus lineatus, n. sp.

Resembling *decens*, but smaller and lighter coloured. Vertex narrow, right-angled. Length: ♀ 5.5 mm., ♂ 5 mm.; width 2.25 mm.

Vertex reduced to a line, over five times longer than wide, slightly wider in front than behind, projecting some distance in front of eye and meeting front in a right angle, the lateral carinæ elevated and nearly meeting behind, forming a trough. Front concave, narrow, broadening out below the middle, where it is over three times as wide as at the base,

the median carinæ obsolete at base, pronotum short, scutellum with five carinæ.

Colour: vertex and front fuscous, the carinæ light, scutellum fuscous on disc, the carinæ and lateral margins light testaceous. Elytra hyaline, the nervures pale, rather sparsely dotted with fuscous, becoming thicker towards apex, legs and below mostly pale.

Male genital segment long and parallel margined, the ventral margin produced into a broad triangular tooth which is produced at apex into a short stout tooth. Styles in a horizontal plane, longer than the tooth, strap shaped, their outer margins rounded at apex, their inner ones produced into short reflexed hooks.

Described from one female and two males from Phoenix, Ariz. (Kunze.) The narrow produced vertex will at once distinguish this species.

Æcleus excavatus, n. sp.

Form and structure of *lineatus* nearly, narrower, darker, with a broader vertex. Length 5 mm.; width 1.75 mm.

Vertex parallel-margined, twice as wide as in *lineatus*, length three times its width, projecting in front of eyes as far as in *lineatus* and meeting the front in a still sharper angle, front broader above and narrower below than in *lineatus*, base over half as wide as the apex, the median carina extending to base. Elytra long, narrow, folded at rest.

Colour: vertex and face black, the carinæ light, scutellum fuscous, the five carinæ and sometime the margin testaceous. Elytra milk-white, the sutural margins creamy, interrupted with black near the middle and again at apex of clavus, nervures pale, thickly beset with large black spots somewhat confluent towards apex. Below fuscous.

Male genital segment long cylindrical, the posterior margin ventrally produced into a long narrow tooth, constricted at the base. Styles long, the shape hidden by the wax with which they are coated.

Described from four specimens, three females and one male, from Wray, Lamar and Fort Collins, Colo.

Æcleus obtusus, n. sp.

Resembling *excavatus*, but stouter and with a shorter vertex. Length: ♀ 6 mm., ♂ 5 mm.; width 2 mm.

Vertex rather narrow, three and one-half times as long as its apical width, still narrower at base, extending scarcely more than the width of

the carinae in front of the eye and meeting the front in an obtuse angle. Face in profile rounding, about equally margining eye from the base to the ocelli, front constricted at base, where it is one-third the width between the antennae, the median carina obsolete at base. Pronotum roundly emarginate posteriorly, the lower posterior angle scarcely, if at all, inclined backwards.

Colour: vertex and front fuscous, the carinae light, scutellum testaceous, carinae testaceous. Elytra milky, the nervures smoky brown, with very faint punctures, sometimes light at base, the punctures slightly more distinct.

Posterior margin of male genital segment in the form of an equilaterally triangular tooth. Styles but little longer than the tooth, broad at base, narrowing down to just before the apex, where they are knobbed and produced into stout hooks on the inner margin.

Described from twenty-four specimens from Neb., Kans., Colo. and Utah.

Ecleus campestris, n. sp.

Form and general appearance of *obtusus*, slightly larger, darker and with a broader vertex and front. Length: ♀ 6 mm., ♂ 5 mm.; width 2.25 mm.

Vertex broad and short, but little over twice longer than wide, meeting the front in an obtuse angle, which is produced but a trifle in front of the eye. Front broad, rather flat, regularly widening from the broad base to just before the apex, where it is scarcely twice as wide as at the base, the median carina usually extending to base, pronotum longer than in *obtusus*, the posterior margin broadly angulate, the lower posterior angles acute and inclined backwards.

Colour: vertex and front black, the carinae light, scutellum brownish, with the five carinae testaceous and often another pair of testaceous lines outside these. Elytra hyaline, the nervures yellow, heavily marked with dark spots, the sutural margin light, often twice interrupted with fuscous and the stigma is often fuscous marked.

Male genital segment produced posteriorly in a rounding or obtusely triangular lobe, produced at the apex into an acutely triangular tooth. Styles long, set vertically, expanded towards the apex and bearing on their inner faces, at nearly one-third their length from the apex, rounding or cylindrical protuberances.

Described from twenty-four examples from Lamar, Colo.

Æcleus fulvidorsum, n. sp.

Form of *obtusus* nearly, but smaller and with a tricarinate scutellum. Colour pale yellow, scutellum fulvous. Length: ♀ 5 mm., ♂ 4 mm.; width 1.75 mm.

Vertex a little over three times longer than wide, parallel margined, meeting front in an obtuse angle as in *obtusus*, front short and broad at base, where it is half as wide as at apex. Pronotum angularly excavated posteriorly, scutellum tricarinate or with another pair of very faint carinæ.

Colour: pale creamy yellow, the clypeus and scutellum fulvous. Elytra pale creamy, the nervures concolorous, dotted with testaceous beyond the apex of clavus.

Male genital segment long, posterior margin produced in the form of a narrow finger-like process, slightly widest at base. Styles stout, subcylindrical, but little longer than the process, their apices nearly truncate, a pair of short stout processes on their inner faces just before the apex.

Described from twenty-three specimens from Grand Junction, Colo., and one from Phoenix, Ariz. The pale yellow colour and the tricarinate scutellum easily separate this species.

Æcleus acutus, n. sp.

Form of *lineatus* nearly, lighter coloured, with a narrower vertex and tricarinate scutellum. Length 5.5 mm.; width 2 mm.

Vertex very long, simply a line on the posterior half, widening out slightly beyond the eyes, extending nearly half its distance in front of eyes and meeting front in an acute angle, front very narrow, evenly rounding in profile. Pronotum long and shallowly excavated posteriorly, scutellum tricarinate, the two lateral carinæ very near the median one.

Colour: pale yellow, slightly washed with orange on disc of scutellum. Elytra subhyaline, the nervures light with very small fuscous punctures.

Male genital segment produced into a broad short tooth with an obtusely rounding apex. Styles narrow, twice as long as the tooth, broadened at the apex, before which there is a recurved tooth on the inner margin.

Described from two males from Port au Prince, Hayti. (R. J. Crew.)

A glance at the long vertex and the three close-set carinæ on the scutellum is all that is necessary to determine this species.